

CLAIMS

I/we claim:

1. An irradiating direction control apparatus of a lighting
5 unit for a vehicle, said apparatus changing an irradiating
direction of the lighting unit depending on an attitude of the
vehicle that is based on information detected by vehicle height
detecting means, said apparatus comprising:

10 identifying means for determining a difference in a load
state of the vehicle corresponding to at least one of a passenger
and a carrying capacity;

15 storage means for storing data indicative of an
installation error of the vehicle height detecting means, based
on a difference between a reference vehicle height value
corresponding to a load state of the vehicle determined by the
identifying means and an actual vehicle height value, by using
the reference vehicle height value in performing an
initialization for eliminating an influence of the installation
error on control performed by said control apparatus; and

20 irradiation control means for obtaining the attitude of
the vehicle based on an operation from vehicle height data
corrected by using the data stored in the storage means for the
data detected by the vehicle height detecting means and for
controlling a direction of an optical axis of irradiation of
25 the lighting unit for the vehicle, based on a result of the
operation.

2. The apparatus of claim 1, wherein the reference vehicle
height value changes when at least one of an operating signal
in an initialization on an assembly line of the vehicle and a
30 signal indicative of a state of a power source is detected, and
said vehicle height changes when the signal is not detected.

3. The apparatus of claim 1, wherein a plurality of
initializing switches distinguish a difference in a load state
in the initialization.

35 4. The apparatus of claim 1, wherein at least one of a voltage
and a current set by an initializing switch is detected to

distinguish a difference in a load state in the initialization.

5. The apparatus of claim 1, wherein at least one input of an initializing switch is detected to distinguish a difference in a load state in the initialization.

5 6. The apparatus of claim 1, wherein information representing a residual amount of a fuel is acquired to distinguish a difference in a load state in the initialization.

7. The apparatus of claim 1, wherein a reference vehicle height value obtained when an amount of a fuel is a specified amount smaller than a fraction of a full amount of a fuel container is used in a first load state related to the vehicle, and a reference vehicle height value obtained when the amount of the fuel is a specified amount equal to or larger than the half of the full amount is used in a second load state related to the vehicle.

8. The apparatus of claim 7, wherein said fraction is one-half.

9. The apparatus of claim 1, wherein said lighting unit comprises at least one of a headlamp, a fog lamp and a cornering lamp.

10. The apparatus of claim 1, wherein said vehicle height detecting means detects a displacement of a vehicle height related to an axle portion of at least one of a front wheel and a rear wheel of said vehicle.

11. The apparatus of claim 1, wherein said storage means comprises at least one of a flash memory an EEPROM, and can be backed up to prevent erasure when power is not supplied to said storage means.

12. The apparatus of claim 1, wherein said identifying means comprises a computer-readable medium containing a set of instructions for performing said determining of said difference, and said irradiation control means comprises a computer-readable medium containing a set of instructions for performing said obtaining and said controlling.

13. A method of changing an irradiating direction of the lighting unit depending on an attitude of the vehicle that is

based on information detected by vehicle height detecting means, so as to control an irradiating direction of a lighting unit for a vehicle, said method comprising:

5 determining a difference in a load state of the vehicle corresponding to at least one of a passenger and a carrying capacity;

10 storing data indicative of an installation error of the vehicle height detecting means, based on a difference between a reference vehicle height value corresponding to a load state of the vehicle determined by the determining step, and an actual vehicle height value, by using the reference vehicle height value in performing an initialization for eliminating an influence of the installation error on control performed by said control apparatus; and

15 obtaining the attitude of the vehicle based on an operation from vehicle height data corrected by using the data stored by the storing step for the data detected by the vehicle height detecting means, and controlling a direction of an optical axis of irradiation of the lighting unit for the vehicle, based on
20 a result of the operation.